District 25 News

MAKIKI, TANTALUS, MCCULLY, PAPAKOLEA August/September 2007

Dear Neighbors,

This summer, I joined members of the House Finance Committee on site visits throughout the islands to better understand the challenges facing our State and to learn about solutions being developed by the private and public sectors of our community. During these visits, I have paid close attention to renewable energy projects that are critical to the economy and security of our State.

Energy costs for everything from gasoline to electricity continue to rise each year. As a state and a nation, we are more concerned about developing renewable energy technologies to reduce our dependence on fossil fuels.

In July 2007, the Finance Committee toured the Kaheawa Wind Farm on the island of Maui. Situated on the southwest slope of the West Maui Mountains, Kaheawa is located in an area where winds have been recorded at 50 miles per hour. The extraordinary location provides 20 giant electricity-generating turbines with ample wind to generate power for the island. As an added environmental benefit, by replacing the burning of fossil fuels at Maui's power plants, Kaheawa eliminates the use of approximately 244,000 barrels of oil annually.

In August 2007, the Committee traveled to the Big Island where we visited Keahole Point, home to the Natural Energy Laboratory of Hawaii Authority (NELHA), Hawaii's world-recognized ocean science and technology park. Through research begun over 30 years ago, NELHA is a leader in ocean thermal energy conversion (OTEC) technology. By using the difference between deep, cold ocean water and warm surface water, NELHA's OTEC plant is able to create electrical power and provide valuable seawater for other innovative commercial enterprises, including fish, lobster, shellfish, and algae aquaculture, bottled desalinated water and pharmaceutical research.

Inside this issue:

Rep. Belatti stops for a picture in front of Kaheawa Wind Farm's electricity-generating turbines on the West Maui Mountains.

It is critical that our leaders and communities embrace local renewable energy options to reduce our dependence on petroleum and prepare for tomorrow's energy needs today. With rising energy costs, increasing demand, a finite oil supply, and the global climate crisis, it is well past time to implement our renewable energy options. Hawaii's potential as a renewable energy leader is clear given its abundant renewable solar, wind and ocean resources.

Please contact me or my office if you have particular questions or concerns about renewable energy projects around the state. I can be reached by phone at 586-9425, by fax at 586-9431, or by email at repbelatti@capitol.hawaii.gov.

Mahalo,

DELLA AU BELATTI, State Representative

Striving for Energy Self-Sufficiency

Rep. Della Au Belatti

Almost 90% of Hawaii's energy comes from imported oil, placing Hawaii at the mercy of everything that affects the global oil supply from world events to natural disasters. Because of this reliance, the Legislature has worked to develop an economy based on renewable energy options. The 2007 Legislature focused on providing resources to energy producers to help them meet renewable energy standards that will move Hawaii away from reliance on imported oil.

What has the Legislature done in the past to move our State towards energy self-sufficiency?

One of the most important steps towards energy self-sufficiency was taken in 2001 when the Legislature required our electric utilities to move away from petroleum. By 2010, 10% of a utility's electricity must be from renewable resources. In 2015, the requirement increases to 15% and in 2020 to 20%. These requirements are called the "renewable portfolio standards" or RPS.

Other initiatives include renewable energy tax credits that reward individual and commercial use of renewable power, solar energy incentives, a net energy metering program encouraging production of electricity through decentralized, renewable means, and energy efficiency goals for state programs and facilities (see page 4).

How do we <u>know</u> what is the best path to take toward energy self-sufficiency?

Reaching self-sufficiency is a complicated process requiring considerations of appropriate crop sources, adequate access to water, availability of land, development of infrastructure and refineries, and a developed workforce. For these reasons, a biofuel summit and bioenergy workshop were convened in August 2006 by the Department of Business, Economic Development, and Tourism (DBEDT). This year, the Legislature built on this foundation by requiring DBEDT to prepare a Bioenergy Master Plan (Master Plan) that establishes an effective strategy for the State's transition to energy self-sufficiency based, in part, on the use of biofuels for power generation and transportation.

What will this Master Plan accomplish?

The Master Plan will assess the degree to which Hawaii can rely on biofuels, and provide a roadmap to guide development of a commercially viable biofuels industry. Issues relating to land use, water, financial incentives, industry barriers, and environmental concerns will be considered. The Plan is expected to identify strategic partnerships for biofuels research, development, testing, and deployment. $300,000 was appropriated to develop the plan (HB 1003, Act 253).

Are there existing companies or future plans for the opening of biofuel refineries that are willing to grow the biofuel industry here in Hawaii?

Hawaii has two biodiesel plants, one on Maui and another on Oahu, run by Pacific Biodiesel, that could produce 1.5 million gallons per year from waste cooking oil. Local Biofuels received a permit in December 2006 to build a facility on Kauai. Two other companies recently announced that they will be locating in Hawaii. A plant is being built in Kapolei by Imperium Renewables Inc. A second refinery is being proposed for Maui by BlueEarth Maui Biodiesel.

Energy Self-Sufficiency:

Sustaining our community by using local resources (wind, solar, and wave) to power all of our energy needs.

Biofuels are only one part of Hawaii's energy portfolio for the future. Is the Legislature looking at a broader range of renewable energy solutions?

Yes. The Legislature recognizes that our State is blessed with abundant renewable sources, including the sun, wind, and the ocean, that can be used to create power to meet our energy needs.

One innovative technology with enormous potential for Hawaii is Ocean Thermal Energy Conversion (OTEC). OTEC systems convert solar radiation to electric power by using the difference in temperature between the warm, shallow surface and the deep, cold waters of the ocean. This year, $5.3 million was appropriated to expand NELHA's seawater distribution system to connect to a proposed OTEC power plant on the Big Island (HB500). As this technology matures, more and more of Hawaii's power could be provided by our best renewable resource, the ocean.

Rep. Belatti snapped this picture of the pumps that draw deep ocean water at the Big Island OTEC site.

Is the Legislature working to support other efficient ways of creating power from our State's renewable resources?

Yes, many renewable technologies are in their infancy. The Legislature recognizes that it is best to explore the many options.

There is, however, one long-term solution that the Legislature has made a strong commitment to with funding for research and development. Hydrogen, as a renewable energy source, has strong potential for our State. Renewable energy from wind and solar power can be used to separate water into hydrogen and oxygen. The hydrogen can then be stored and burned as a fuel.

Hydrogen has several advantages as a fuel. Compared with oil, fewer pollutants are formed when hydrogen burns, and hydrogen fuel does not emit carbon into the atmosphere to contribute to global warming. Challenges, however, include developing cost-efficient means of production and storage, and establishing the infrastructure for distribution.

Last year, the Legislature established the Hawaii Renewable Hydrogen Program to manage the State's transition to a renewable hydrogen economy, and appropriated $10 million to the newly established Hydrogen Investment Capital Special Fund. This session, the Legislature continued to support the Program by appropriating over $7.3 million from the Special Fund to provide seed capital for venture capital investment in the private sector and federal projects under the Program (HB500).

Can renewable energy technologies be adapted for uses other than strict energy production

Producing more energy is always an option, but reducing our use of energy is just as important to conserve our resources. Renewable energy technology can be used to do this.

Another ocean-based renewable technology will be used on a massive scale to replace the energy needs of air conditioning buildings in downtown Honolulu. Sea Water Air Conditioning (SWAC) uses chilled fresh water pumped through buildings to cool them like conventional air conditioning. Instead of a conventional chiller, SWAC brings in deep, cold seawater to cool down fresh water in a heat exchanger, then pumps the warm seawater back into the ocean. The use of cold seawater significantly reduces costs by cutting back on the electricity needed to cool the fresh water.

The Legislature authorized the issuance of up to $20 million in special purpose revenue bonds to help with planning, design and construction of a SWAC project designed to provide energy-efficient air conditioning to most of downtown Honolulu. Preliminary work began on this project in 2003, and operations are expected to commence in July 2009.

Hawaii's Global Warming Solutions Act

This year, the Legislature enacted the Global Warming Solutions Act (HB 226, Act 234), making Hawaii a leader among states to address the approaching climate crisis.

The Global Warming Solutions Act is a critical first step to identifying, regulating and reducing Hawaii's greenhouse gas emissions. The new law requires the State to lower statewide greenhouse gas emissions by 2020 to levels at or below what they were in 1990.

In the short-term, the Department of Business, Economic Development and Tourism and the Department of Health are tasked with completing an updated inventory of emission sources by December 31, 2008. At least one public hearing will be held prior to the completion of the updated inventory.

The new law also establishes a 10-member Greenhouse Gas Emissions Reduction Task Force that will prepare a comprehensive work plan and regulatory scheme to meet the targeted levels.

Global warming's impact in Hawaii will be most noticeable by a rising sea level. Reports state that the Pacific Ocean rose six to eight inches in the 20th century. It is predicted to rise an additional 17 to 25 inches over the next 100 years.

"The Legislature recognizes that we can no longer wait to meet our moral obligation to future generations for a safe, healthy and secure environment," states Rep. Hermina Morita, Chair of the House Committee on Energy and Environmental Protection. "This Act is a meaningful, but measured, plan of action to address Hawaii's contribution to global climate change by reducing greenhouse gas emissions through regulation."

State Facilities Lead the Move Toward Energy Efficiency

Recognizing that the State must play a part in moving towards energy self-sufficiency, the Legislature in 2006 directed State agencies to install energy efficient systems and equipment to maximize energy efficiency in State buildings. In 2006 and 2007, the Legislature appropriated critical funds to begin the transition and fund the following projects:

- **$3 million** for a comprehensive energy conservation plan to maximize energy efficiency in public facilities, operations and construction;
- **$11 million** for equipment for public buildings to maximize energy efficiency;
- **$10.2 million** to public libraries for design, construction and maintenance of energy efficiency projects;
- **$500,000** to the Department of Public Safety to develop an energy conservation program;
- **$130,000** each year for the 2007-2009 fiscal biennium for a renewable Energy Analyst and a Energy Efficiency Analyst to implement state conservation programs;
- **$49,048** each year for the 2007-2009 fiscal biennium for an Energy Coordinator for the DOE; and
- **$50,000** for the UH Hawaii Energy Policy to conduct a study with the Department of Business and Economic Development and recommend energy-efficient transportation strategies.